Ontario tax studies 7

Analysis of income and property taxes in Guelph

Ministry of Treasury, Economics, and Intergovernmental Affairs
Taxation and Fiscal Policy

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Staff Paper

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and Intergovernmental Affairs
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PREFACE

In the March 1969 White Paper on provincial-municipal tax reform, the Hon. C.S. MacNaughton, Treasurer of Ontario, outlined the intention of the Ontario Government to incorporate property tax credits within the personal income tax system in order to secure a fairer distribution of the combined burden of property and income taxation. At the November 1971 meeting of the Ministers of Finance in Ottawa, the general framework of a property tax credit plan was outlined by the Hon. W. Darcy McKeough, Treasurer of Ontario. After extensive negotiations with the federal government, in the 1972 Budget, the Ontario Government announced its Property Tax Credit Plan which will serve as a model for other provinces.

The findings of this study on the incidence of property taxation and the redistributive impact of alternative tax credit formulae contributed in a large measure to the design of the tax credit plan now in effect. The study is based primarily on the application of the Guelph Tax Analyzer Model. Using income tax records and property assessment rolls, with particular care to insure anonymity of the individuals whose records are used, the model is capable of analyzing the incidence implications of alternative provincial-municipal tax structures. In particular, it has provided for the first time a reliable measure of the property tax burden actually borne by individuals and families at different levels of income.

The development of the analytical models and the preparation of this staff study was undertaken in the Taxation and Fiscal Policy Branch, under its Director, Mr. D.M. Allan. The study is part of the broad program of quantitative research on taxation being undertaken in the Branch.

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October 1972

ONTARIO PROPOSALS FOR TAX REFORM IN CANADA

I	Hon. Charles MacNaughton	Ontario Proposals for Tax Reform in Canada
II	Hon. Charles MacNaughton	Tax Reform and Small Business
III	Hon. W. Darcy McKeough	Taxation of Corporations and Shareholders

ONTARIO TAX STUDIES (Staff Papers)

1. Analysis of the Federal Tax Reform Proposals
2. Effects of Ontario's Personal Income Tax Proposals
3. Technical Study on Tax Reform and Small Business
4. Tax Reform and Revenue Growth to 1980
5. Technical Study on Integration
6. Pensim: Canada Pension Plan Simulation Model
7. Analysis of Income and Property Taxes in Guelph
8. Federal-Provincial Shared-Cost Programs in Ontario

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INTRODUCTION AND SUMMARY

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INTRODUCTION AND SUMMARY

1.1 Purpose of the Study

This study outlines the analytical research undertaken in conjunction with development of the Property Tax Credit Plan introduced by the Government of Ontario in 1972.[1] The research focuses on two closely related objectives. The first objective was to measure the actual incidence of residential property taxes in Ontario. The second objective was to analyze the redistributive impact of alternative property tax credit schemes, including the Ontario Property Tax Credit Plan.

The first Ontario-wide measure for the relief of the burden of property taxes was the Basic Shelter Exemption Scheme introduced in 1968 on the recommendation of the Smith Committee.[2] Following publication of the Smith Committee Report, a Select Committee of the Ontario Legislature proposed that the Basic Shelter Exemption be modified as a credit "recoverable by means of a decrease in personal income tax, whether this be a positive or negative amount."[3] The Ontario Property Tax Credit Plan introduced for 1972 closely follows the intent of the Select Committee proposal.

In addition to describing the analysis used in developing the Ontario Property Tax Credit, this study surveys the other methods used to examine the incidence of residential property taxes for other periods of time and in other jurisdictions. There is also a summary of the schemes employed to relieve residential property tax burdens in other jurisdictions in Canada, the United States, and the United Kingdom.

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1 Hon. W. Darcy McKeough, *Ontario Budget 1972* (Toronto: Department of Treasury and Economics, March 28, 1972), p. 12; and Budget Paper B, "Ontario's Property Tax Credit Plan", *ibid.*, p. 75 and following.

2 "An Act to Provide for the Reduction of Municipal Taxes on Residential Property," *Revised Statutes of Ontario, 1970* (Toronto: Queen's Printer, 1970) Vol. 5, Section 1 (2), Chapter 414, p. 39; and, *Report of the Ontario Committee on Taxation Vols. I - III* (Toronto: Queen's Printer, 1967).

3 The Select Committee of the Legislature on Taxation in Ontario, *Taxation in Ontario: A Program for Reform* (Toronto: Legislature of Ontario, 1968), p. 39.

1.2 Method of Analysis

Though there has been a general view that property taxation is regressive, this conclusion has never been demonstrated adequately for Ontario by measuring the actual relationship between residential property taxes and levels of personal income. The Guelph model was constructed to obtain reliable findings on the actual incidence of property taxes in a representative Ontario city.[4]

The selection of the property tax credit formula introduced by the Ontario Government in 1972 was based on an analysis of the incidence of the property taxes in Guelph and an extensive testing of the implications of a wide variety of alternative specifications of the credit formula. The analysis was conducted in three stages:

1. Using a simple computer model, an examination was conducted of various credit formulae for representative income tax return filers with many different hypothetical combinations of personal exemptions and deductions for income tax purposes.

2. The incidence of property taxes and the effects of the property tax credit formula were analyzed using the actual income tax and property assessment records of the City of Guelph in 1968. Comparable results for 1972 were then obtained using a simple extrapolation procedure. The anonymity of individuals whose records were used was carefully protected throughout the study.

3. The Guelph pattern of property taxes was incorporated in a model to estimate the revenue effects and impact of the tax credit formulae for Ontario as a whole.

The three models in the analysis — the representative taxfiler model, the Guelph analysis model, and the Ontario effects model — provided a complementary and integrated approach to the examination of the incidence and revenue effects of various possible tax credit formulae. Each possible tax credit formula was tested in three steps. First, its implications were examined for representative taxfilers, using a number of different combinations of family personal exemptions and deductions. Second, if the formula proved practical, it was applied against the actual income and property tax records of residents of Guelph. And third, the revenue impact of the credit formula was estimated using the aggregative income tax data for Ontario in 1968.

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[4] Residential property assessment rolls for Guelph in 1968 formed an appropriate information base for the analysis because the city had just completed a complete re-assessment of property at market value. As a consequence, biases in the incidence pattern of property taxes due to discrepancies between assessment values and market values were kept to a minimum. Guelph was the first municipality in Ontario to complete the re-assessment of property at market value. The pattern and level of incomes and property taxes observed in Guelph are characteristic of Ontario as a whole. In 1969, average gross income per tax return filed in Ontario was $5,622 and in Guelph $5,348. In that year average residential property taxes were $371 in Ontario and $347 in Guelph. The proportion of total assessment represented by residential property is about the same as in Ontario. The only significant difference is that the ratio of exempt assessment is higher due to the extensive university and penal reform properties in Guelph. See also Hon. W. Darcy McKeough, *Ontario Budget 1972, op. cit.*, p. 96.

1.3 Summary of Results

The detailed analysis for Guelph confirms a number of widely held but hitherto inadequately substantiated views about the impact of the property tax. The residential property tax in Ontario is regressive, particularly at the lower end of the income scale. The burden of property tax falls more heavily on pensioners than on other categories of taxpayers. In the past, provincial relief of property taxes in the form of basic shelter grants partially offset the regressivity of the property tax. The property tax credit plan, by comparison, produces a significant redistribution of tax burdens so that the combined incidence of property tax plus income tax becomes progressive over the entire spectrum of incomes. These basic findings are summarized in greater detail in the following paragraphs and tables.

The average level of residential property tax for each income group is shown in Table 1—1 for 1968 and 1972. The average property tax in 1968 for the income class below $2,500 is $269. Approximately the same level of property tax applies over the entire range of low incomes up to $6,000. Above $6,500 of gross income, the level of property tax rises as income increases. Thus, property tax is approximately $400 at the $10,000 income level and $600 at incomes in the $20,000 to $25,000 range.

When the average level of property tax is examined as a percentage of gross incomes of principal income earners, the regressive burden of the tax is clear. In 1968, property tax absorbed 18 per cent of gross income for those with income below $2,500. In the $3,000 — $5,000 income range, the property tax absorbed between 8 and 6 per cent. The burden of the tax was about proportional at between 5 and 4 per cent for incomes between $5,000 and $15,000 and regressive above $15,000, absorbing progressively less of gross income. In 1972, the incidence of the tax is slightly heavier on the lowest income groups and about the same as in 1968 for incomes above $5,500. These results are shown in Table 1—2.

With principal income recipients divided into broad age groups, property taxes absorb about the same proportion of income for all age groups up to age 65. For the broad groupings of under 35 years of age and between 35 and 65 years of age, property taxes absorb an average of about 4.5 per cent of gross income. However, for the over 65 age group the burden of property taxes increases significantly. For this group of pensioners it averages close to 7 per cent of gross income.[5] For all principal income recipients the average burden is about 4.7 per cent of gross income. When the incomes of spouses sharing title to a household are summed, the burden of property taxes on gross family income is about 4.1 per cent. These results are shown in Table 1—3.

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[5] The U.S. Census of Housing in 1950 showed "rent" as a per cent of income to be uniform by age group up to 65 years of age. For those 65 and above it increased markedly. This was so both for owners, where rent was imputed, and tenants. See Margaret Reid, *Housing and Income* (Chicago: University of Chicago Press, 1962), Table 3, p. 60.

The Guelph analysis confirms that the Ontario Property Tax Credit Plan introduced in 1972 substantially redistributes property tax burdens and makes more progressive the combined income tax and property tax burden.[6] The average value of the property tax credit in Guelph, assuming the new Income Tax Act had applied in 1968, ranges from $116 for gross incomes below $2,500 to $4 for gross incomes between $20,000 and $25,000. It is estimated that in 1972 the credit will range from $123 for gross incomes below $2,500 to $2 for gross incomes between $20,000 and $25,000. For all incomes below $5,500 it will be higher than it would have been in 1968 under the new tax act. For incomes above $6,000 it will be lower in 1972 than it would have been in 1968. The detailed incidence of the property tax credit plan in 1968 and 1972 is shown in Table 1—4.

Table 1—5 displays the redistributive impact of the property tax credit. The effect of the tax credit in 1972 is to reduce the joint burden of income and property taxes by 7 per cent from 21 to 14 per cent for gross incomes below $2,500. The joint burden is reduced by about 2 per cent for incomes between $3,500 and $5,500. For incomes between $5,500 and $10,000 about one per cent of the joint burden is relieved. For incomes above $10,000, the tax credit has little or no tax relief impact. Thus, the effect of the property tax credit is to produce a progressive incidence on the combined income and property tax rather than the nearly proportional incidence that has existed hitherto. The improved equity of the overall burden of income and property taxes also represents a marked improvement in the disposable income of low-income households. In future work, the additional burden of sales taxes will also be examined.

The analysis of the Guelph data indicates that the average property tax credit in Guelph in 1972 will be about $62. For principal income recipients under 35 years of age, the value of the average credit will be slightly above average at $63, and for those between 35 and 64 years of age, slightly less at about $60. For those 65 years of age and over, the average value of the credit will be $72.

In Ontario in 1972, the property tax credit is expected to have a revenue cost of about $160 million. This compares with about $158 million had the basic shelter exemption program been continued.[7] The average value of the credit per household will be about $71.

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[6] The tax credit formula adopted for 1972 is as follows:
Homeowners: $90 plus 10 per cent of property tax paid minus 1 per cent of taxable income, up to a maximum credit of $250.
Renters: $90 plus 2 per cent of annual rent minus 1 per cent of taxable income, up to a maximum credit of $250.
Where the property tax paid is less than $90, or the annual rent is less than $450, the tax credit entitlement will be equal to the actual property tax paid or 20 per cent of rent paid, minus 1 per cent of taxable income.
See Hon. W. Darcy McKeough, *Ontario Budget 1972, op. cit.*, p. 80.

[7]

	1968	1969	1970
Average property tax in Ontario	$337	$371	$387
Average shelter rebate	$ 50	$ 54	$ 58

Source: Ministry of Treasury, Economics and Intergovernmental Affairs.

Table 1—1

Average Incidence of Property Taxes in Guelph

Income Class	Average Property Tax 1968 $	Average Property Tax 1972 $
Less than $ 2,500	269	291
$ 2,500 - 2,999	275	317
3,000 - 3,499	259	300
3,500 - 3,999	272	292
4,000 - 4,499	280	294
4,500 - 4,999	278	296
5,000 - 5,499	276	308
5,500 - 5,999	279	302
6,000 - 6,499	292	300
6,500 - 6,999	310	308
7,000 - 7,499	315	310
7,500 - 7,999	321	329
8,000 - 8,499	336	340
8,500 - 8,999	352	352
9,000 - 9,499	359	350
9,500 - 9,999	393	357
10,000 - 11,999	415	393
12,000 - 14,999	475	463
15,000 - 19,999	543	534
20,000 - 24,999	606	639
25,000 - 49,999	661	689
50,000 and Over	838	873

Source: Computer analysis of income and property tax records for residents of Guelph.

Note: The 1972 estimate is derived from an extrapolation of the 1968 data. Analysis is based on the gross income of the principal income recipient in each household.

Table 1–2

Incidence of Property Taxes in Guelph as a Per Cent of Gross Income

Income Class	Average Property Tax as a Per Cent of Gross Income 1968	1972
Less than $ 2,500	18	19
$ 2,500 - 2,999	10	11
3,000 - 3,499	8	9
3,500 - 3,999	7	8
4,000 - 4,499	7	7
4,500 - 4,999	6	6
5,000 - 5,499	5	6
5,500 - 5,999	5	5
6,000 - 6,499	5	5
6,500 - 6,999	5	5
7,000 - 7,499	4	4
7,500 - 7,999	4	4
8,000 - 8,499	4	4
8,500 - 8,999	4	4
9,000 - 9,499	4	4
9,500 - 9,999	4	4
10,000 - 11,999	4	4
12,000 - 14,999	4	4
15,000 - 19,999	3	3
20,000 - 24,999	3	3
25,000 - 49,999	2	2
50,000 and Over	1	1

Source: Computer analysis of income and property tax records for residents of Guelph.

Note: Analysis is based on the gross income of the principal income recipient in each household.

Table 1—3

GUELPH:
Incidence of Property Tax by Categories of Taxpayer

	Average Property Tax in 1968 as Per Cent of Gross Income
Principal Income Recipients	4.65
Household Income[1]	4.07
Head of Household:[2] by Age	
under 35	4.49
35 – 64	4.46
65 and over	6.62

Source: Computer analysis of income and property tax records for residents of Guelph.

Notes: 1. Household income is the sum of spouses' gross income. It neglects the income of children or other relatives living in the home.

2. "Head of household" is defined as the principal income recipient in the family.

Table 1—4

Average Value of the Property Tax Credit in Guelph

Income Class	Average Value of Property Tax Credit 1968 $	1972 $
Less than $ 2,500	116	123
$ 2,500 - 2,999	111	120
3,000 - 3,499	106	114
3,500 - 3,999	102	109
4,000 - 4,499	101	102
4,500 - 4,999	96	97
5,000 - 5,499	92	95
5,500 - 5,999	89	89
6,000 - 6,499	86	85
6,500 - 6,999	84	80
7,000 - 7,499	81	76
7,500 - 7,999	77	73
8,000 - 8,499	75	70
8,500 - 8,999	73	66
9,000 - 9,499	68	61
9,500 - 9,999	67	55
10,000 - 11,999	61	50
12,000 - 14,999	45	33
15,000 - 19,999	23	11
20,000 - 24,999	4	2
25,000 - 49,999	0	0
50,000 and Over	0	0

Source: Computer analysis of income and property tax records for residents of Guelph.

Note: The 1972 estimate is derived from an extrapolation of the 1968 data. Analysis is based on the gross income of the principal income recipient in each household.

Table 1—5

GUELPH:
Total Property and Income
Taxes as a Per Cent of Gross Income
Before and After Property Tax Credit

Income Class	1968 Before Tax Credit %	1968 After Tax Credit %	1972 Before Tax Credit %	1972 After Tax Credit %
Less than $ 2,500	19	11	21	14
$ 2,500 - 2,999	15	11	15	11
3,000 - 3,499	14	11	16	13
3,500 - 3,999	16	13	16	14
4,000 - 4,499	16	14	18	16
4,500 - 4,999	16	14	18	16
5,000 - 5,499	16	14	18	16
5,500 - 5,999	17	15	18	17
6,000 - 6,499	18	17	19	18
6,500 - 6,999	18	17	20	19
7,000 - 7,499	18	17	19	18
7,500 - 7,999	19	18	20	19
8,000 - 8,499	19	18	20	19
8,500 - 8,999	19	18	21	20
9,000 - 9,499	20	19	21	20
9,500 - 9,999	21	20	22	22
10,000 - 11,999	21	20	23	23
12,000 - 14,999	23	23	25	25
15,000 - 19,999	24	24	27	27
20,000 - 24,999	29	29	30	30
25,000 - 49,999	34	34	36	36
50,000 and Over	43	43	45	45

Source: Computer analysis of income and property tax records for residents of Guelph.

Note: Total tax is the sum of average income and property taxes for the class. Analysis is based on the gross income of the principal income recipient in each household.

The following pages present in detail the methods of analysis used by the Government of Ontario in the design and development of its Property Tax Credit Plan. Chapter two describes the Guelph model and chapter three outlines the representative taxfiler model and the model used to estimate the revenue effects of the Property Tax Credit Plan for Ontario. Appendices provide an outline of the history of property tax relief in Ontario and in other jurisdictions.

CHAPTER 2

THE GUELPH MODEL

TABLES

GUELPH MODEL

2.1 Introduction

The Guelph Tax Analyzer Model is an addition to the growing number of computer simulation models employed in the development and testing of proposed and legislated modifications to the personal income tax structure in Ontario.[1] Since 1969 tax analysis through computer simulation has become a routine element in the process of policy development and monitoring carried on within the Ontario Treasury.[2]

The Guelph Model was designed for the purpose of testing alternative approaches to the integration of property taxes and income taxes through the device of tax credits. It is unique in its integration of property tax and income tax records. It examines the detailed incidence of property taxes and the redistributive effects of alternative tax credit formulae. For purposes of designing the property tax credit, the incidence of property taxes was examined for the principal income recipient in each household. Further examination of property tax incidence was done both by household income and age group. This extensive analysis of the incidence of property taxes has provided valuable information on the pattern of housing consumption.

The large variance in property tax levels makes it especially important to know the range of relief which a particular credit formula would make available to heads of household with similar levels of current income. The Guelph Model marks a further step towards a capability to analyze the total burden of taxes by income class along the lines of Richard Musgrave's path-breaking work of 1951.[3]

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[1] The earliest models in this field were: John Bossons, "A General Income Tax Analyzer", Royal Commission on Taxation, Staff Study 25 (Ottawa: Queen's Printer, 1967); and Joseph A. Pechman, "A New Tax Model for Revenue Estimating", in Alan T. Peacock and Gerald Hauser, editors, *Government Finance and Economic Development* (Paris: O.E.C.D., 1965).

[2] *Analysis of the Federal Tax Reform Proposals*, Ontario Tax Studies 1 (Toronto: Department of Treasury and Economics, 1970); *Effects of Ontario's Personal Income Tax Proposals*, Ontario Tax Studies 2 (Toronto: Department of Treasury and Economics, 1970); and *Tax Reform and Revenue Growth to 1980*, Ontario Tax Studies 4 (Toronto: Department of Treasury and Economics, 1971).

[3] Richard A. Musgrave, "Distribution of Tax Payments by Income Groups; A Case Study for 1948", *National Tax Journal*, Vol. IV, March, 1951, pp. 1-53. Such an application of the computer simulation approach is proposed by Joseph A. Pechman in "A New Tax Model for Revenue Estimating", *op. cit.*, p. 240.

Previous Studies

Previous studies have examined the incidence of residential property taxes using a number of alternative methods. None of these was sufficiently reliable as a guide to the incidence of residential property taxes in Ontario to provide a basis for the development of a tax credit formula. The previous study done for Ontario uses proxy data for the burden of property taxes and considers the final incidence of all property taxes, both commercial and residential. Most other studies have the drawbacks of being very dated, of using proxy data and, where sample data is used, not revealing the size of the variance.

Musgrave, in his 1951 studies of the burden of total taxes in the United States and of Michigan taxes in 1956, allocates the burden of residential property taxes by income class using surveys of consumer expenditures and finances data.[4] Studies done in the states of Minnesota and Wisconsin for 1954 and 1956 respectively derive the incidence of residential property taxes using a sample of state income tax returns.[5] Both studies assume property taxes are borne by the occupant whether he is the owner or tenant. There are also small sample analyses for particular municipalities: Lansing Michigan in 1955, Wichita Kansas in 1958, and Los Angeles County in 1959.[6]

The incidence of residential property taxes in the United States in 1959 and 1960 has been studied using three distinct methods. The large sample survey conducted by the Survey Research Centre of the University of Michigan presents the burden of residential property taxes on family money income.[7] An analysis of 1960 United States federal income tax returns examines the incidence of real estate taxes for owners who opted to itemize their deductions.[8] The 1960 United States *Census of Housing* examines the incidence of residential housing taxes using survey statistics and simple incidence assumptions allocating the burden of rental property taxes between owners and tenants.[9]

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[4] Richard A. Musgrave, *op. cit.;* and Richard A. Musgrave and Darwin W. Daicoff, "Who Pays Michigan Taxes", *Michigan Tax Study Staff Papers* (Lansing: 1958).

[5] O.H. Brownlee, *Estimated Distribution of Minnesota Taxes and Public Expenditure Benefits* (Minneapolis: University of Minnesota Press, 1960); and Harold Groves and Donald Knight, *Wisconsin's State and Local Tax Burden* (University of Wisconsin, Department of Commerce, 1959).

[6] Robert H. Pealy and others, "The General Property Tax", Michigan Tax Study Staff Papers (Lansing: 1958); Jack E. Robertson, "Comparative Tax Burdens for a Midwestern City", *National Tax Journal,* Vol. XV, September 1962, pp. 308-313; and Gerhard N. Rostvold, "Property Tax Payments in Relation to Household Income: A Case Study of Los Angeles County", *National Tax Journal,* Vol. XVI, June 1963, pp. 197-199.

[7] James N. Morgan, Martin H. David, Wilbur J. Cohen and Harvey E. Brazer, *Income and Welfare in the United States* (McGraw-Hill, 1962).

[8] Dick Netzer, *Economics of the Property Tax* (Washington: Brookings Institution, 1966) Table 3-6, p. 49.

[9] *Ibid.,* Tables 3-7; 3-8; 3-9, pp. 50-54.

The study of the incidence of residential property taxes for eight counties in northern New Jersey is designed to examine the relationship between residential property taxes and differences in life time income for various occupation groups.[10]

Three studies of residential property taxes have been done in Canada: for Ontario in 1961 and Canada in 1957 and 1961. The two studies for Canada use survey of consumer expenditures data to allocate residential property taxes among income classes. The results of the 1961 Ontario analysis are presented for the burden of total property taxes; that is, both commercial and residential taxes and are derived from surveys of family income data.[11]

The burden of residential rates in England, Scotland and Wales is examined using data from the large sample surveys of the Family Expenditures Survey and the special Regular Expenditure Survey of 1963.[12]

2.2 The Guelph Tax Analyzer Model

The Guelph Analyzer Model is a computer model designed to examine the incidence of residential property taxes in Guelph and test the redistributive effects of alternative tax credit formulae.

The model uses the individual tax records for residents of Guelph in 1968. These were stored on computer tape in the provincial master file and matched with the corresponding assessment records of the City of Guelph. The Guelph assessment information was recorded on computer tape following complete re-assessment at market value of the residential properties in the municipality. The joining of an individual income tax return to the corresponding assessment record was done by a computer program which ensured the complete anonymity of the individuals whose records were used in the analysis.

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[10] Emmanuel Tobier, "Residential Property Tax Incidence in Northern New Jersey," in Dick Netzer, *op. cit.*, pp. 265-296.

[11] James A. Johnson, *The Incidence of Government Revenues and Expenditures*, A Study for the Ontario Committee on Taxation (Toronto: Queen's Printer, 1967), Irving J. Goffman, *The Burden of Canadian Taxation* (Toronto: Canadian Tax Foundation, 1962) and W. Irwin Gillespie, *The Incidence of Taxes and Public Expenditures in the Canadian Economy*, Royal Commission on Taxation, Staff Study 2 (Ottawa: Queen's Printer, 1964).

[12] Committee of Inquiry into the Impact of Rates on Households, *Report* (London: H.M.S.O. 1965).

Income taxes are examined under the provisions of the Income Tax Act as it existed up to December 1971 (omitting the special in-year tax reduction of 3 per cent) and under the new tax act which came into effect January 1972. The analysis is conducted for 1968, the year from which the data is derived, and for 1972. There is no distinction in the analysis between properties which are owner-occupied and those which are rented. The results indicate both the incidence of property taxes and the impact effects of the property tax credit. The final incidence of the property tax credit depends on how housing prices are affected by the change from a uniform exemption per household to tax relief dependant upon both income and property taxes paid.[13]

The method used in this study is analogous to that employed in earlier studies in this series.[14] The model is described fully in the program manual where a complete listing of the program may also be found.[15] In examining the current tax system, the model allows for the change in personal exemptions, the major alteration in the tax base. The model also allows for the change in the dividend tax credit but because of data limitations in the master taxfile, does not include other modifications in the tax base.[16]

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[13] Under conditions where the withdrawal of the basic shelter exemption reduces the price of supermarginal houses proportionately to the decrease in price of marginal houses, the final incidence of the removal of the basic shelter allowance is on the occupier, whether he is the owner or the tenant. Quantitative assessments of the difference between the final incidence of a tax change on owners and tenants have not been attempted. See Herbert A. Simon, "The Incidence of a Tax on Urban Real Estate", page 428 in Richard A. Musgrave and Carl S. Shoup, *Readings in the Economics of Taxation* (Homewood: Richard Irwin Inc., 1959).

[14] See: *Analysis of the Federal Tax Reform Proposals, op. cit.; Effects of Ontario's Personal Income Tax Proposals, op. cit.;* and *Tax Reform and Revenue Growth to 1980, op. cit.*

[15] See: Brian Hull, *GUELPHCRED: Analysis of the Revenue and Incidence Effects of Tax Credits in Guelph* (Toronto: Ministry of Treasury, Economics and Intergovernmental Affairs, 1972) with an appendix on the record matching procedure by Harry Newton. mimeo.

[16] In the analysis of the current tax system, the differences between it and the former system which have not been taken into account are: the standard employee expense allowance; deductibility of Unemployment Insurance contributions and taxation of U.I.C. benefits; attribution of employee medical contributions and sickness and accident benefits from private plans; the changed definition of medical expenses; and the inclusions of scholarship and fellowship income and the special student allowance.

The Data Base

In 1968, there were 15,407 residential properties in Guelph.[17] In the match of income tax and property assessment records, it was possible to identify 8,779 of the properties and assign to them the tax returns of the occupants. For about 3,235, identification was impossible. These properties were not labelled by an individual name but were described as vacant lots or vacant dwellings, called "owner-occupied", "owned by companies" or "owned by listed tenants". The balance of 3,393 could not be matched because surnames on the income tax and assessment records did not correspond for a given address. This group accounts for about 22 per cent of the total. As about a fifth of all households change address every year, most of this mismatch is due to removals and the remainder is caused by inconsistent spelling of names between property assessment and income tax records. As both owner-occupied and rental accommodation are assessed at market value in Guelph, this study does not distinguish between the two forms of tenure. The matched records include those for both owner-occupied and rented accommodation.

In 1968 there were 29,044 income tax returns from Guelph. Of this total, 11,910 were assigned to residential properties as certain matches. There were 3,131 households where the names of at least two income taxfilers appeared on the property assessment rolls.

The Extrapolation from 1968 to 1972

In extrapolating the 1968 data base to 1972, the simplest procedure was used. The master taxfile from which the Guelph income tax records are taken contains information in a more summary form than does the intensive sample used for compilation of *Taxation Statistics.*[18] The detailed information of the intensive sample makes possible the relatively complex extrapolation procedure employed in *Tax Reform and Revenue Growth to 1980.*[19] However, the intensive sample does not include surnames and addresses with the records.

In the extrapolation used in this study, the number of taxfilers and properties is increased by the estimated increase in the number of taxfilers in Ontario between 1968 and 1972. In a similar fashion, income of each taxfiler is increased by the change in average income in Ontario between 1968 and 1972. The forecast used for 1972 was undertaken by the Ontario Ministry of Treasury, Economics and Intergovernmental Affairs.

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[17] *1968 Summary of Financial Reports of Municipalities* (Toronto: Department of Municipal Affairs, 1968), page 1.

[18] *Taxation Statistics* (Ottawa: Department of National Revenue: Taxation, 1970).

[19] *Tax Reform and Revenue Growth to 1980, op. cit.*, pp. 83-100.

Property taxes in 1968 were calculated by applying the 1968 mill rate for Guelph to the sum of assessment for land and improvements for each unit. Where applicable, the special farm mill rate was employed. The total rate for Guelph in 1968 was 27.7 mills. This included a mill rate of 16.3 for general purpose; 6.7 for elementary schools and 4.7 for secondary schools. The special farm rate in 1968 was 24.7 mills. In 1968 residential property was re-assessed at market value in Guelph. It was to this assessment roll that the 1968 mill rate was applied in the study as the purpose was to examine the incidence of property taxes in a situation where the discrepancy between assessed and market values was at a minimum. For the 1972 analysis, the study assumes the 1971 mill rate of 30.6 remains unchanged.

Analysis of Household Income and the Incidence of Property Taxes by Age Group

Tests for differences in the incidence of property taxes among age groups and for alternative definitions of income are possible within the Guelph analysis. The simplest of these are reported in this study. The population of principal income recipients in each household was divided into three age groups: those less than 35 years of age in 1968, those between 35 and 64 years of age and those 65 years of age and over. The incidence of property taxes and the average value of the property tax credit is examined for each group. The incidence of property taxes on the entire group of households is also examined for a more inclusive definition of household income; that is: where the name of more than one income taxfiler in the household also appears on the property assessment record, household income is the sum of these incomes.

2.3 Results of the Guelph Analysis

The results of the analysis of the Guelph situation outlined in chapter one have confirmed the highly regressive nature of the burden of residential property taxes. The following is a more detailed discussion of the property tax incidence pattern. In the analysis, tax returns are assigned to income classes by the gross income of the taxfiler with the largest income in the household, in order to correspond to the claiming procedure of the tax credit plan. To examine the incidence of property taxes by family income, tax returns are classified by the sum of the gross income of spouses who share title to the property.

The results of the incidence analysis are discussed in the following order: first, for numbers of principal income recipients distributed by gross income and property tax classes; second, with the population of principal income recipients divided into three principal groups by age; third, with incomes classified by the sum of spouses income where title to the property is shared; finally, a test for the sensitivity of the results to the selection of principal income recipient from a broader definition of the family.

Dispersion of Principal Income Recipients

The detailed analysis of the results confirms the wide dispersion of property taxes around the mean level for every gross income class. The large variance is not significantly altered when the data is examined by major age groupings of taxfilers. The dispersion of property tax by income class for the total number of properties examined in the study is illustrated in Table 2–1 and 2–2. These tables show the number of properties in each gross income/property tax cell for 1968 and 1972. For example, in 1968 there were 837 residential properties occupied by households where the principal income recipient had less than $2,500 gross income. Of these, the property tax on 34 was less than $100. For 213 of the households, property tax was between $100 and $200 and for 306 it was between $200 and $300. The largest portion of the balance, 183, had property taxes between $300 and $400. Similarly, in 1968, there were 424 households where the principal income recipient had a gross income between $10,000 and $12,000. Of these 131 had property taxes between $300 and $400 and a further 124 between $400 and $500. In 1972, it is estimated there will be 726 residential properties where the principal income recipient has a gross income less than $2,500. This is 111 properties less than in 1968. Of these, property taxes will be between $200 and $300 for 264 and between $300 and $400 for 161.

Incidence By Age Groups

The analysis by major age groupings is shown for 1968 in Table 2–3. For taxfilers over 64 years of age in 1968 property tax is equal to or higher than that for either of the other age groupings where principal gross income is between $2,500 and $10,000. Above the $10,000 to $15,000 income range, average property tax is highest for the middle aged group while for the group between $12,000 and $15,000, it is highest for the under 35 group and for the $15,000 to $20,000 it is highest for those over 65. As the standard deviation of property tax for each income class and age group reveals, even where the pattern is clearest, there is no marked significance in the difference between averages by age group.

Average income is clearly shown to vary with age group, but the incidence of property taxes by age group is regressive, whether property taxes are taken as a percentage of gross or disposable income. For those with gross incomes of less than $2,500, property taxes absorb about 19 per cent of gross income for those under 35 years of age, about 21 per cent for those between 35 and 64, and 14 per cent for those aged 65 and over. In the lowest income class where income taxes are a very small fraction of income the incidence of property tax by income class is altered very little when it is measured as a fraction of disposable income. However, for higher incomes, property tax is an appreciably higher portion of disposable income than gross income.

Incidence By Household Income

The incidence of property taxes by household income is instructive, though not immediately relevant to the operation of the property tax credit plan. In this study household income is the sum of the income of all income tax return filers who share title to the property as recorded on the assessment roll. About 3,100 additional taxfilers shared with the principal income recipient in ownership of the 8,779 properties. In this analysis household income excludes the income of children as well as the income of a spouse who does not share ownership in the property. Average property tax by household income as here defined is shown for 1968 in Table 2–4. The average incidence of property tax by household income class is not greatly different from that for principal income recipients alone, although the distribution of households among income classes is, of course, substantially different.

Sensitivity Test

The principal test of the various property tax formulae required that the principal income recipient be chosen from among the taxfilers whose first name, as well as surname, appeared on the property assessment rolls. As a test for the sensitivity of the results, a selection of the principal income recipient from among all taxfilers in the household whose surname alone was the same as that on the assessment roll was conducted. No difference appeared in the incidence of property taxes, the redistributive effect or cost of the tax credit formula using this broader definition of the household.

Impact of the Property Tax Credit Plan

The results of the Guelph analysis reflect the redistributive effects of the new Ontario Property Tax Credit Plan. In the course of the analysis of the Guelph records, the tax credit is calculated separately for the principal income recipient in each household. The average value of the credit is then determined for each gross income/property tax cell. These averages are shown for 1972 in Table 2–5. For example, the average value of the credit in 1972 in Guelph for eligible taxfilers with between $10,000 and $12,000 gross income and between $400 and $500 property tax is $47. As Table 2–2 indicates, 301 properties of the 1,204 in this gross income class occur in this cell.

The improvement of vertical equity produced by the tax credit plan may be seen clearly by selecting a property tax class, say $300 to $400, in Table 2–5 and noting that the value of the credit begins at $109 for the lowest income class and declines gradually until it is worth one dollar for gross incomes between $15,000 and $20,000 and nothing for higher incomes. Similarly, the improvement in horizontal equity is illustrated by selecting a gross income class, say $6,000 to $6,500 and noting that the value of the credit increases from $57 for the 7 properties with property taxes below $100 to $97 for the 28 properties in the class with property taxes between $500 and $600.

A summary description of the incidence of property taxes, the burden of income taxes and the redistributive effect of the property tax credit is shown in Table 2—6 for 1972. This table shows that the personal income tax, when considered by itself, is highly progressive. It absorbs from two per cent of gross income on average for those with incomes less than \$2,500 to 44 per cent of income for those with incomes between \$50,000 and \$100,000. When the incidence of the income tax is considered with the highly regressive burden of property taxes, the overall burden of income and property taxes becomes much less progressive, and approaches proportionality. The redistributive effect of the property tax credit plan produces a more progressive incidence in the overall burden of income and property taxes.

The effect of the tax credit within each of the major age groupings of the principal income recipient in each household is shown in Table 2—7. Average levels of property tax credit by age group reflect the incidence pattern of property taxes. For most low income groups, those over 65 receive the largest tax credit, though only by a small margin. In general, the slightly heavier property taxes borne by the old are offset in the application of the property tax credit formula by the fact that the lower age groups, with more dependants, have lower taxable incomes.

Table 2–1

GUELPH:
Distribution of Principal Income Recipients by Income and Property Tax Classes 1968

INCOME CLASS	PROPERTY TAX CLASSES												
	$0	100.	200.	300.	400.	500.	600.	700.	800.	900.	1000.	1100.	1200.
Less than $ 2,500	34	213	306	183	73	14	8	5	0	0	0	0	1
$ 2,500 - 2,999	3	68	102	59	21	9	2	1	0	0	0	0	0
3,000 - 3,499	15	85	99	82	25	4	0	0	0	0	0	0	0
3,500 - 3,999	8	111	121	93	25	10	3	5	0	0	0	0	0
4,000 - 4,499	9	83	170	101	35	12	3	0	1	0	0	0	0
4,500 - 4,999	11	110	199	122	42	14	2	0	0	1	0	0	1
5,000 - 5,499	11	132	258	167	54	8	4	0	1	0	0	0	0
5,500 - 5,999	10	152	300	196	64	15	3	1	0	0	0	0	0
6,000 - 6,499	12	137	308	264	83	17	2	3	0	0	0	0	0
6,500 - 6.999	7	78	237	254	81	20	3	3	0	0	0	0	0
7,000 - 7,499	2	66	193	212	65	20	5	2	0	1	0	0	0
7,500 - 7,999	0	52	145	169	66	18	2	2	0	0	0	0	0
8,000 - 8,499	4	25	115	149	65	16	3	1	1	0	1	0	0
8,500 - 8,999	0	14	64	127	52	15	3	0	0	1	0	0	0
9,000 - 9,499	0	18	58	92	59	28	1	0	0	0	0	0	0
9,500 - 9,999	0	6	33	65	39	23	2	2	1	1	0	0	1
10,000 - 11,999	0	12	61	131	124	71	15	4	4	1	0	0	1
12,000 - 14,999	1	1	20	61	101	65	33	13	3	0	0	0	0
15,000 - 19,999	0	2	11	30	50	43	32	17	6	6	2	2	1
20,000 - 24,000	0	0	1	10	10	12	11	8	5	1	3	0	1
25,000 - 49,999	0	0	5	4	6	18	13	17	13	3	1	3	0
50,000 - 99,999	0	0	0	0	2	2	3	2	1	0	2	0	4
100,000 and Over	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	127	1365	2806	2571	1142	454	153	86	36	15	9	5	10

Source: Computer analysis of income and property tax records for residents of Guelph.

Notes:
1. Property tax classes are identified by the lower threshold of the class.
2. The analysis assumes Bill C-259 to have been in effect in 1968.
3. For the 1968 analysis, residential assessment is taxed at the 1968 total residential mill rate for Guelph of 27.7 mills. The special farm properties rate is 24.7 mills.

Table 2–2

GUELPH:
Distribution of Principal Income Recipients by Income and Property Tax Classes 1972

INCOME CLASS	PROPERTY TAX CLASSES												
	$0	100.	200.	300.	400.	500.	600.	700.	800.	900.	1000.	1100.	1200.
Less than $ 2,500	20	155	264	161	87	21	7	8	2	0	0	0	1
$ 2,500 - 2,999	2	42	74	71	39	12	1	2	1	0	0	0	0
3,000 - 3,499	1	54	99	59	33	11	5	2	0	0	0	0	0
3,500 - 3,999	5	64	74	70	37	11	2	0	0	0	0	0	0
4,000 - 4,499	14	84	101	90	59	13	4	1	1	0	0	0	0
4,500 - 4,999	1	84	120	86	39	10	6	4	1	1	0	0	0
5,000 - 5,499	6	64	155	115	54	21	6	2	0	0	0	0	0
5,500 - 5,999	6	94	169	126	57	25	5	0	0	0	1	0	1
6,000 - 6,499	7	98	197	157	75	28	4	1	0	0	0	0	0
6,500 - 6,999	7	103	266	193	102	24	11	1	1	1	0	0	0
7,000 - 7,499	6	112	252	212	130	24	2	4	0	0	0	0	0
7,500 - 7,999	5	89	246	284	136	40	10	4	1	0	0	0	0
8,000 - 8,499	6	58	195	215	143	39	6	4	2	0	0	0	0
8,500 - 8,999	1	38	152	195	128	20	14	4	1	0	1	0	0
9,000 - 9,499	0	48	121	157	103	36	11	1	1	0	0	0	0
9,500 - 9,999	2	26	109	134	96	32	10	1	0	1	0	0	0
10,000 - 11,999	1	46	186	321	301	119	37	7	2	0	2	1	1
12,000 - 14,999	0	10	56	134	189	134	67	6	5	6	1	0	1
15,000 - 19,999	1	1	18	56	87	112	74	30	12	5	2	0	0
20,000 - 24,999	0	0	5	13	23	32	30	27	14	4	5	2	4
25,000 - 49,999	0	0	5	8	19	20	27	23	20	13	4	0	7
50,000 - 99,999	0	0	0	0	1	4	7	5	2	6	1	4	6
100,000 and Over	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	93	1270	2864	2858	1938	782	344	137	69	37	18	7	21

Source: Computer analysis of income and property tax records for residents of Guelph.

Notes: 1. Property tax classes are identified by the lower threshold of the class.

2. The analysis assumes Bill C-259 to be in effect in 1972 and is based on the 1968 data extrapolated to 1972.

3. The mill rate in Guelph increased by 11.02 per cent between 1968 and 1971. The 1971 mill rate is assumed to remain unchanged for 1972 in this analysis.

4. Sums may not add to totals due to rounding.

Table 2–3

Property Tax in Guelph by Age
1968

Income Class	Average Property Tax			Standard Deviation			Percentage of Gross Income			Percentage of Disposable Income		
	Under 35	35-64	65 and Over	Under 35	35-64	65 and Over	Under 35	35-64	65 and Over	Under 35	35-64	65 and Over
Less than $ 2,500	$263	$290	$252	$127	$139	$101	18.9	21.0	14.4	19.3	21.4	14.5
$ 2,500 - 2,999	273	276	276	129	111	110	9.8	10.1	10.1	10.5	10.7	10.4
3,000 - 3,499	234	259	274	100	114	99	7.2	7.9	8.4	7.8	8.5	8.8
3,500 - 3,999	259	264	306	114	123	131	6.9	7.0	8.2	7.7	7.7	8.8
4,000 - 4,499	267	280	295	119	108	111	6.3	6.5	7.0	7.0	7.2	7.6
4,500 - 4,999	238	291	297	103	119	129	5.0	6.1	6.3	5.6	6.8	7.0
5,000 - 5,499	241	287	301	95	105	101	4.6	5.4	5.7	5.2	6.1	6.5
5,500 - 5,999	252	290	298	96	103	122	4.4	5.0	5.2	5.0	5.7	5.9
6,000 - 6,499	256	302	326	101	98	149	4.1	4.8	5.2	4.7	5.5	6.0
6,500 - 6,999	296	313	353	102	101	135	4.4	4.6	5.3	5.1	5.3	6.1
7,000 - 7,499	292	324	339	110	105	133	4.0	4.5	4.6	4.7	4.8	5.4
7,500 - 7,999	300	328	341	104	104	124	3.9	4.2	5.1	4.6	5.0	6.0
8,000 - 8,499	322	341	340	111	113	130	3.9	4.1	4.1	4.6	4.8	4.8
8,500 - 8,999	326	360	325	93	105	97	3.7	4.1	3.7	4.4	4.9	4.5
9,000 - 9,499	324	372	344	102	110	106	3.5	4.0	3.7	4.2	4.8	4.6
9,500 - 9,999	388	390	550	117	143	255	4.0	4.0	5.6	4.8	4.8	6.9
10,000 - 11,999	390	426	385	126	135	108	3.6	3.9	3.5	4.4	4.7	4.3
12,000 - 14,999	488	474	461	132	130	129	3.7	3.5	3.5	4.6	4.3	4.3
15,000 - 19,999	400	553	613	137	188	180	2.4	3.2	3.4	3.2	4.1	4.4
20,000 - 24,999	470	630	517	75	211	189	2.2	2.8	2.3	3.0	3.8	3.1
25,000 - 49,999	770	661	567	117	204	211	2.4	2.0	1.6	3.5	2.9	2.4
50,000 - 99,999	–	793	1150	–	282	100	–	1.3	1.9	–	2.2	3.2
100,000 and Over	–	–	–	–	–	–	–	–	–	–	–	–

Source: Computer analysis of income and property tax records for residents of Guelph.

Note: Age distribution is determined by the age of the principal income recipient in the household.

Table 2–4

GUELPH:
Average Property Tax
By Household Income Class
1968

Income Class	Mean Property Tax	Standard Deviation	Median Property Tax
	$	$	$
Less than $ 2,500	268	125	205
$ 2,500 - 2,999	276	112	211
3,000 - 3,499	261	109	207
3,500 - 3,999	276	125	211
4,000 - 4,499	278	115	217
4,500 - 4,999	285	127	219
5,000 - 5,499	275	106	216
5,500 - 5,999	268	102	209
6,000 - 6,499	281	103	225
6,500 - 6,999	290	104	232
7,000 - 7,499	301	115	240
7,500 - 7,999	302	103	253
8,000 - 8,499	317	109	259
8,500 - 8,999	319	106	264
9,000 - 9,499	330	110	277
9,500 - 9,999	342	129	282
10,000 - 11,999	355	120	298
12,000 - 14,999	417	137	354
15,000 - 19,999	495	171	425
20,000 - 24,999	581	216	500
25,000 - 49,999	650	201	606
50,000 - 99,999	836	277	717
100,000 and Over	–	–	–

Source: Computer analysis of income and property tax records for residents of Guelph.

Note: Household income is the sum of spouses' gross income. It neglects the income of children or other relatives living in the home.

Table 2–5

Average Property Tax Credit — by Income and Property Tax Classes
1972

INCOME CLASS	PROPERTY TAX CLASSES												
	$0	100.	200.	300.	400.	500.	600.	700.	800.	900.	1000.	1100.	1200.
Less than $ 2,500	80	90	100	109	118	129	136	149	159	0	0	0	210
$ 2,500 - 2,999	77	86	95	105	114	122	134	139	145	0	0	0	0
3,000 - 3,499	68	82	91	100	112	124	130	139	0	0	0	0	0
3,500 - 3,999	73	76	88	96	108	117	131	0	0	0	0	0	0
4,000 - 4,499	59	70	81	93	103	111	130	137	131	0	0	0	0
4,500 - 4,999	53	67	76	89	96	109	124	133	149	152	0	0	0
5,000 - 5,499	45	63	75	85	94	104	110	136	0	0	0	0	0
5,500 - 5,999	54	60	69	80	88	104	112	0	0	0	139	0	210
6,000 - 6,499	57	56	65	78	85	97	98	111	0	0	0	0	0
6,500 - 6,999	44	54	61	71	81	88	102	116	107	149	0	0	0
7,000 - 7,499	37	49	59	67	75	84	108	102	0	0	0	0	0
7,500 - 7,999	27	43	54	65	72	82	92	97	119	0	0	0	0
8,000 - 8,499	32	42	50	61	69	75	85	99	93	0	0	0	0
8,500 - 8,999	15	37	45	57	63	72	80	82	142	0	119	0	0
9,000 - 9,499	0	32	39	54	59	70	79	78	109	0	0	0	0
9,500 - 9,999	5	26	34	47	55	63	72	105	0	99	0	0	0
10,000 - 11,999	3	16	28	39	47	55	67	74	80	0	108	123	182
12,000 - 14,999	0	10	7	17	27	35	44	58	61	96	79	0	123
15,000 - 19,999	0	0	0	1	4	9	14	26	29	31	12	0	0
20,000 - 24,999	0	0	0	0	0	1	1	0	5	0	5	3	33
25,000 - 49,999	0	0	0	0	0	0	0	0	0	0	0	0	1
50,000 - 99,999	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000 and Over	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Computer analysis of income and property tax records for residents of Guelph.

Notes: 1. Property tax classes are identified by the lower threshold of the class.

2. The analysis assumes Bill C-259 to have been in effect in 1968 and 1972.

3. Average tax credits have been rounded to the nearest dollar.

Table 2–6

GUELPH:
Incidence of Property Taxes, Income Taxes and Property Tax Credit
1972

Income Class	Property Tax % Gross Income	Income Tax % Gross Income	Credit % Gross Income	Income Tax Less Credit % Gross Income
Less than $ 2,500	19	2	7	(5)
$ 2,500 - 2,999	11	4	4	1
3,000 - 3,499	9	7	3	4
3,500 - 3,999	8	8	2	6
4,000 - 4,499	7	11	2	9
4,500 - 4,999	6	12	2	10
5,000 - 5,499	6	12	2	10
5,500 - 5,999	5	13	1	12
6,000 - 6,499	5	14	1	13
6,500 - 6,999	5	15	1	14
7,000 - 7,499	4	15	1	14
7,500 - 7,999	4	16	1	15
8,000 - 8,499	4	16	1	15
8,500 - 8,999	4	17	1	16
9,000 - 9,499	4	17	1	16
9,500 - 9,999	4	18	0	18
10,000 - 11,999	4	19	0	19
12,000 - 14,999	4	21	0	21
15,000 - 19,999	3	24	0	24
20,000 - 24,999	3	27	0	27
25,000 - 49,999	2	34	0	34
50,000 - 99,999	1	44	0	44
100,000 and Over	—	—	—	—

Source: Computer analysis of income and property tax records for residents of Guelph.

Note: Bracketed figures indicate refunds.

Table 2—7

GUELPH:
Average Property Tax Credit
For Major Age Groups
By Income Class
1968

Income Class	AGE		
	Under 35	35 - 64	65 and Over
	$	$	$
Less than $ 2,000	115	118	114
$ 2,500 - 2,999	109	110	113
3,000 - 3,499	102	106	109
3,500 - 3,999	100	102	107
4,000 - 4,499	99	101	102
4,500 - 4,999	91	98	98
5,000 - 5,499	87	95	92
5,500 - 5,999	85	91	89
6,000 - 6,499	81	89	85
6,500 - 6,999	76	86	86
7,000 - 7,499	73	83	78
7,500 - 7,999	73	78	78
8,000 - 8,499	69	77	69
8,500 - 8,999	64	75	62
9,000 - 9,499	66	70	58
9,500 - 9,999	58	67	75
10,000 - 11,999	49	63	44
12,000 - 14,999	11	45	37
15,000 - 19,999	—	24	10
20,000 - 24,999	—	5	—
25,000 - 49,999	—	—	—
50,000 - 99,999	—	—	—
100,000 and Over	—	—	—

Source: Computer analysis of income and property tax records for residents of Guelph.

CHAPTER 3

THE REPRESENTATIVE TAXFILER AND ONTARIO MODELS

TABLES

THE REPRESENTATIVE TAXFILER AND ONTARIO MODELS

3.1 Introduction

The process of narrowing the selection of possible property tax credit formulae to be tested in the Guelph Model was done using a simple model which examined the impact of a wide range of alternative specifications on taxfilers in hypothetical circumstances of income and property tax liability. Those formulae which gave an acceptable impact in the Guelph Model were then tested for their overall revenue effects in Ontario using another simple computer model.

3.2 The Representative Taxfiler Model

The computer model which displayed the incidence effects of various possible specifications of the formula on taxfilers in hypothetical circumstances made possible a detailed examination of the implications of each particular formulation. Each formula was tested with the assumption of various family circumstances. Thus, it was possible to see how each formula would affect a taxpayer filing as single or married, with one or several dependants, with or without the employment expenses deduction, as well as whether over or under 65 years of age.

The objectives which an acceptable formulation of the credit was required to fulfill were: generous benefits to low-income families and individuals, and smoothly progressive incidence up the income scale. The satisfactory formula had also to be designed within overall revenue constraints and within the further constraint that the middle-income taxfiler, in particular the married man earning between \$10,000 and \$12,000 a year with two children, should not in general be worse off than he would have been under the basic shelter exemption program.

Property tax credit formulae, which were either only sensitive to differences in income or differences in actual property taxes paid, were among the possible broad specifications. However, the criteria of horizontal and vertical equity required a formula which was sensitive to both differences in income and property taxes. Among various complex formulae examined was the following: the credit as a function of some constant fraction of property tax paid times one minus either gross or taxable income divided by another constant. Tests showed that the refinement produced by such a formula was not worth the added complexity which would be experienced by individuals in calculating their credit.[1]

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[1] A full description of the model and the alternative formulae considered is to be found in Brian Hull, *REPCRED: Representative Taxfiler Analysis for Property and Sales Tax Credits* (Toronto: Ministry of Treasury, Economics and Intergovernmental Affairs, 1972) mimeo.

3.3 *Effects on Representative Taxfilers*

One of the views widely held in the technical literature which the Guelph analysis has confirmed is the great variation in the consumption of housing by taxpayers within the same gross income class.

About 68 per cent of the population in a normal distribution is contained within one standard deviation on either side of the mean. For principal income recipients in Guelph, the range of property tax within which 68 per cent of the group falls is about $250 for incomes up to $10,000. For incomes above this it gradually increases, reaching $500 for incomes between $25,000 and $50,000.

The effects of the property tax formula on various representative taxfilers were examined for: the single taxfiler with no dependants; the married taxfiler with no, one and two children; and the elderly taxfiler. These are shown in Table 3—1 for mean property tax in the income class only. The situation for the married taxfiler with two children is shown in Table 3—2 for three levels of property tax: the average for gross income in that class and one standard deviation on either side of the mean. This gives some idea of the sensitivity of the tax credit to differing levels of housing consumption.

3.4 *The Ontario Model*

The revenue effects in Ontario of various property tax credits were analyzed with a simple model which used the incidence pattern of property taxes revealed in Guelph. The basic data for the provincial analysis is 1968 data from *Taxation Statistics.*[2] This data is projected to 1972 within the same economic framework as that used for the Guelph analyzer. The analysis is conducted under both the former and current tax structures. The adjustment of the tax base from the old structure to the new is done using two different procedures. The first of these alters the tax base by the change in personal exemptions only. This change in the tax structure has by far the largest impact on the tax base. The second procedure adjusts taxable income in each income class by the ratio of taxable income under the former and current tax systems as derived from the analysis of the effects of all changes in the tax base by the Ontario Income Tax Analyzer model.[3] The difference between estimates made using each of these procedures is small.

In 1968 the average level of provincial residential property tax was $337. The average for Guelph was $326. The incidence of property taxes by income class in Guelph is normalized to the provincial level by the ratio of average provincial to average Guelph residential taxes.

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[2] *Taxation Statistics* (Ottawa: Department of National Revenue: Taxation, 1970) Returns of Individuals for 1968.

[3] See Brian Hull: *PROVCRED: Analysis of the Revenue and Incidence Effects of Property and Sales Tax Credits in Ontario* (Toronto: Ministry of Treasury, Economics and Intergovernmental Affairs, 1972) mimeo.

The major difficulty in assessing the revenue effects of a credit formula is in estimating the number of eligible households. In 1968 there were 3.37 million tax returns filed and 2.17 million residential properties assessed in Ontario. A household for residential property tax purposes must be distinguished from the actual household unit. More than one "family" may share living quarters in a property assessed as a single residential unit. While the financial arrangements may be very informal, there will often be some form of rental payment. The simplest example would be a family taking in a lodger. Conversely, a family may have several dwellings: a town house, a farm, a cottage, and a ski chalet. Each of these will be assessed as a distinct household for residential property tax purposes. In addition, many vacant lots zoned for residential housing are counted as separately assessable units and counted as households.

In 1970 there were about 2.4 million households in Ontario.[4] Between 1970 and 1972 the number of households is assumed to increase about 3.8 per cent a year. The number of households eligible for the property tax credit must be reduced by the number of summer cottages (about 200,000), increased by the estimated 7,000 person rise in eligible tenants, lodgers, and other families sharing accommodation, and reduced by the estimated 150,000 units eligible for the credit who will neglect to file. About 2.24 million eligible units will file in 1972. With an average value for the 1972 property tax credit of $71, the total cost to Ontario will be approximately $160 million.

Table 3—3 shows the average value of the credit in 1972 by gross income and family characteristics for Ontario. For an individual filing as single with a gross income between $5,000 and $5,500 the property tax credit averages $62. For an individual filing as married with the same gross income and five or more dependants, the credit is about $115.

For taxfilers with gross incomes between $10,000 and $25,000, the property tax credit yields nothing for those filing as single and yields about $15 for those filing as married with five or more children. The class between $10,000 and $25,000 is very large and the value of the credit is substantially more for those with incomes between $10,000 and $15,000. The figures shown are averages.

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[4] Preliminary figures from the Ministry of Treasury, Economics and Intergovernmental Affairs.

Table 3–1

Levels of Property Tax Credit for Representative Filers with Specified Levels of Property Tax

Gross Income Level	Property Tax Level	FILING STATUS Single	Married	Married 1 Child Under 16	Married 1 Child Under 16 1 Over 16	Married 2 Children Over 16	Married Couple Over 65 Years Old
$ 0	$ 300	$120	$120	$120	$120	$120	$120
2,500	325	116	120	120	120	120	120
3,000	300	109	120	120	120	120	120
3,500	300	104	118	120	120	120	120
4,000	300	100	113	116	120	120	116
4,500	300	95	109	112	117	120	111
5,000	300	91	104	107	113	115	106
5,500	300	86	99	102	108	110	101
6,000	300	81	95	98	103	106	96
6,500	300	76	90	93	98	101	91
7,000	300	72	85	88	94	96	86
7,500	325	70	83	86	92	94	84
8,000	350	67	81	84	87	92	81
8,500	350	63	76	79	85	87	76
9,000	350	58	71	74	80	82	71
9,500	350	53	67	70	75	80	66
10,000	400	54	67	70	76	78	66
12,000	450	40	53	56	62	64	51
15,000	550	22	35	38	44	46	31
20,000	600	0	0	0	0	4	0
25,000	700	0	0	0	0	0	0
50,000	900	0	0	0	0	0	0
100,000	1,000	0	0	0	0	0	0
200,000	1,000	0	0	0	0	0	0

Source: Representative taxfiler model.

Notes: Analysis is conducted under the new tax system. Deductions include standard employment expense allowance and registered pension fund contributions at 6 per cent of gross income to a maximum contribution of $2,500 (except for taxfilers over 65 years of age.)

Table 3–2

Taxpayer Filing as Married, Two Children Over 16

Gross Income	In 1972, 68 per cent of taxfilers, married with two children over 16, will receive a credit between:				
$ 0	$108	and	$133,	average	$120
2,500	110	"	135	"	123
3,000	108	"	133	"	120
3,500	108	"	133	"	120
4,000	108	"	133	"	120
4,500	107	"	132	"	120
5,000	105	"	128	"	115
5,500	98	"	123	"	110
6,000	93	"	118	"	106
6,500	88	"	113	"	101
7,000	84	"	109	"	96
7,500	82	"	107	"	94
8,000	77	"	102	"	92
8,500	75	"	97	"	87
9,000	70	"	97	"	82
9,500	65	"	88	"	80
10,000	66	"	93	"	78
12,000	49	"	79	"	64
15,000	31	"	61	"	46
20,000	0	"	24	"	4
25,000	0	"	0	"	0
50,000	0	"	0	"	0
100,000	0	"	0	"	0

Source: Representative taxfiler model.

Note: The tax credit shown is for the average property tax in Guelph in 1972 and the property tax one standard deviation either side of the average property tax. About 68 per cent of taxfilers in any income class with the assumed dependency characteristics will have credits within the indicated range. The taxfiler is assumed to deduct the employment expense allowance and make registered retirement pension fund contributions at 6% of gross income up to a maximum contribution of $2,500.

Table 3–3

Average Value of Property Tax Credit by Gross Income and Dependency Classes in Ontario 1972

INCOME CLASS	TAXED AS SINGLE		TAXED AS MARRIED					
	With No Dependant	With 1 or More Dependants	With No Dependant	With 1 Dependant	With 2 Dependants	With 3 Dependants	With 4 Dependants	With 5 or More Dependants
	$	$	$	$	$	$	$	$
Up to $2,500	121	122	122	122	122	122	122	122
$ 2,500 - 2,999	102	112	121	122	122	122	122	122
3,000 - 3,499	93	97	108	115	120	120	120	120
3,500 - 3,999	84	95	104	110	113	121	122	122
4,000 - 4,499	78	89	97	103	108	114	119	123
4,500 - 4,999	70	81	90	95	100	106	111	122
5,000 - 5,499	62	73	81	87	92	97	103	115
5,500 - 5,999	55	67	74	79	85	90	96	107
6,000 - 6,499	50	59	68	73	79	84	90	101
6,500 - 6,999	44	56	63	68	73	78	85	97
7,000 - 7,499	38	48	56	62	66	71	77	88
7,500 - 7,999	32	44	49	54	59	65	70	81
8,000 - 8,499	26	36	43	48	53	58	64	74
8,500 - 8,999	20	31	38	42	47	52	59	70
9,000 - 9,499	15	25	32	37	41	46	52	63
9,500 - 9,999	12	22	28	34	38	43	48	59
10,000 - 24,999	0	0	0	0	0	1	5	15
25,000 and Over	0	0	0	0	0	0	0	0

Source: Computer analysis of aggregative taxation statistics for Ontario. See Brian Hull: *PROVCRED: Analysis of the Revenue and Incidence Effects of Property and Sales Tax Credits in Ontario* (Toronto: Ministry of Treasury, Economics and Intergovernmental Affairs, 1972) mimeo. Data base is from *Taxation Statistics* (Ottawa: Department of National Revenue, Taxation, Edition 1970) and is 1968 data extrapolated to 1972.

Notes: Property tax is the average for each income class normalized to Ontario and derived from the Guelph analysis. Analysis conducted under the new Income Tax Act.

APPENDIX A

DEVELOPMENT OF THE TAX CREDIT APPROACH

DEVELOPMENT OF THE TAX CREDIT APPROACH

A.1 The Ontario Committee on Taxation

Since 1962, with the appointment of the Ontario Committee on Taxation (the Smith Committee), the Government of Ontario has been actively concerned that the taxation and revenue system of the Province be as simple, clear, equitable, efficient, adequate and conducive to growth as possible.[1] Much of the effort of that committee was directed at assessing the burden and equity of the residential property tax. Although the Smith Committee foresaw in its final report that the property tax must remain a major tax source as a pre-requisite to the maintenance of local authority and fiscal responsibility, it nevertheless believed it to be of vital importance that the property tax be made as efficient and equitable as possible.[2]

In the view of the committee, the problem with the property tax, as with most other taxes, was not that the costs were allocated to the wrong people but that it was impossible to say to whom they were allocated.[3] The committee took into consideration the rival contentions:

(a) that the property tax was regressive, that is, that those with low incomes spent a larger fraction of their incomes on the provision of shelter than those with high incomes;

(b) that when the property tax was considered in relation to lifetime income, it was proportional, if not progressive.[4]

The committee believed the statistical evidence for the second contention was too weak to be relied upon,[5] and furthermore, revealed a general dissatisfaction with the quality of the statistical evidence available to it on the degree of regressiveness of the residential property tax in Ontario.

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1 From the terms of reference of the Ontario Committee on Taxation (Smith Committee). See: *Report of the Ontario Committee on Taxation,* Vol. 1 1967, p. viii.

2 Smith Committee, *op. cit.,* Vol. II, paragraph 1, p. 65.

3 *Ibid.,* Vol. II, paragraph 57, p. 13.

4 *Ibid.,* Vol. II, paragraphs 58 and 60, pp. 13 and 14.

5 *Ibid.,* Vol. II, paragraph 61, p. 14.

The committee's recommendations to alleviate the shortcomings of the property tax took two forms:

(a) to reduce the weight of real property taxes through increased provincial grants.

(b) to promote a basic shelter exemption for each unit of living accommodation and thereby allocate the burden of the remaining tax in a manner more consistent with generally held standards of equity.[6]

The basic shelter exemption was advanced as a flat exemption to reduce the taxable assessment of every self-contained dwelling unit, whether a detached single family dwelling or a unit within an apartment house or other multi-family structure. "In recommending such a plan, we believe that it must be assumed that the forces of competition will in due course lead landlords to pass on tax savings to tenants."[7]

The committee recommended, as the formula for the basic shelter exemption, the lesser of the local mill rate multiplied by $2,000 of provincially equalized municipal assessment or 50 per cent of the residential taxable assessment applicable to the self-contained dwelling unit.[8]

A.2 The Residential Property Tax Reduction Act

The Ontario Committee on Taxation reported in August 1967 and the Province enacted the Residential Property Tax Reduction Act early in 1968. The new act followed the recommendations of the committee, with the exception that the 50 per cent limit was not adopted. Landlords were required to pay tenants the full amount of the tax reduction.

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[6] *Ibid.*, Vol. II, paragraph 67, p. 16.

[7] *Ibid.*, Vol. II, paragraph 100, p. 90.

[8] *Ibid.*, Vol. II, paragraph 119, p. 95.

A.3 The Select Committee of the Legislature on Taxation in Ontario

The report of the Smith Committee was reviewed by a Select Committee of the Legislature which in turn issued a report, *Taxation in Ontario: A Program for Reform,* in September 1968.[9] In its report the Select Committee stated that if Ontario followed its recommendation to proceed with a retail sales tax credit, it should modify the Basic Shelter Exemption as "an additional credit recoverable by means of a decrease in personal income tax whether this tax be a positive or negative amount."[10]

> The 'Credit Approach' would permit the exclusion of second residences (such as cottages) in a way that now seems administratively impossible, thereby increasing the degree of progressivity that the Basic Shelter Grant gives to property taxes. It would eliminate exemptions to non-residents in a way that seems not inconsistent with the objective of the program. It would assure that the credit reached the tenant. Finally, this method would eliminate the present difficulties in apportioning rebates to those householders who occupy more than one residence during a calendar year. Of course, the credit would be restricted to one per family.[11]

A.4 Amendments to the Residential Property Tax Reduction Act

The Residential Property Tax Act underwent minor amendments, primarily administrative, for the 1969 tax year. These included provision for in-year payments to tenants who moved within the first 11 months of the year and application of a ceiling on the size of the reduction to 50 per cent of total taxes on the property.

For 1970 the formula was substantially modified. The rebate ceased to be a function of equalized assessment and became a flat rate amount plus a fraction of the previous year's average taxes for the municipality. The formula for 1969 and 1970 was a basic $30 plus 10 per cent of the average residential taxes in the municipality or a ceiling of 50 per cent of the total municipal taxes on a property, whichever was the lesser.

This continued to be the formula for 1971, the last year in which the Residential Property Tax Reduction Act was in effect.

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[9] The Select Committee of the Legislature on Taxation in Ontario, *Taxation in Ontario: A Program for Reform* (Toronto: Legislature of Ontario, 1968).

[10] *Ibid.*, p. 39.

[11] *Ibid.*, p. 40.

The basic shelter grants issued under the Tax Reduction Act did partially offset the regressivity of property taxes by providing a flat amount of relief to all taxpayers on the basis of average municipal taxation. However, the program did not provide adequate vertical or horizontal equity: it provided low levels of relief to the lowest income groups and did not provide equal treatment to taxpayers in similar economic circumstances. The only way to improve the equity of the program was to link property tax burdens directly to the ability to pay of each individual and family in Ontario.[12]

A.5 The White Paper on Provincial-Municipal Tax Reform

In 1969, the Ontario Government first announced its intention to connect and co-ordinate its provincial and municipal tax structure through an integrated personal income tax-property tax credit system.

> Integration will be achieved through provisions for the deduction of taxes paid by individuals in other provincial and municipal fields from their tax liability under the provincial personal income tax. For example, it will be possible to replace the present Basic Shelter Tax Exemption payments by property tax credits. Such an arrangement would be superior to the present practice in two respects. First, it would channel property tax relief directly back to all taxpayers — homeowners and tenants. Second, the tax credit system offers more scope for redistributing property tax burdens. For example, the property tax credits could be designed to vary with income and family size or could have an upper income cut-off point. Eventually, this form of integration could be extended to incorporate tax credits against payments of retail sales taxes, health insurance premiums, and other provincial taxes which are regressive in impact. An essential adjunct of this integrated personal income tax-property tax credit system would be a rebate mechanism to pay refunds to those taxpayers whose total credits exceed their total personal income tax liability. Such a procedure would represent a move toward a positive income supplement or guaranteed income scheme.[13]

In effect, it was proposed to relieve property tax burdens by relating them to the ability-to-pay principle which governs personal income taxation. In 1969 the Ontario Government foresaw the possibility that it would have to establish its own system of income taxation to achieve the sort of co-ordination of the provincial and municipal systems which it sought.[14]

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[12]This deficiency in horizontal equity is evident from the fact that the shelter grant paid to any particular taxpayer in 1971 ranged from extremes of $33 to $101 depending upon the municipality in which he lived.

[13]Hon. Charles MacNaughton, "Reform of Taxation and Government Structure in Ontario", *Ontario Budget 1969* (Toronto: Department of Treasury and Economics, 1969), p. 56.

[14]*Ibid.*, p. 55.

At the same time, it continued to press for a national tax system which was sufficiently flexible that provincial objectives might be pursued within its framework. In its proposals to the federal government for tax reform in Canada the Ontario Government urged "that the relief of the provincial-municipal tax burden on the lowest-income Canadians be accorded the highest priority in comprehensive tax reform." It proposed that in place of increased general exemptions two measures be introduced for the relief of low-income earners: a low-income allowance "to remove the income tax burden on people in the lowest brackets and to provide gradually tapering relief to people in the lower-middle brackets", and refundable tax credits "to offset the provincial-municipal tax burden on those people who do not earn enough to pay income taxes".[15] Studies were done to examine the quantitative implications of these proposals and to compare their effects with the effects of the reforms proposed in the federal white paper.[16] These studies demonstrated the conceptual and operational superiority of tax credits over increased personal exemptions in terms of equity, revenue cost, simplicity, and greater flexibility in response to changing needs over time.[17]

The federal government rejected the use of selective income tax credits on a national basis as a means of achieving tax relief for low-income taxpayers. However, the federal government did agree in principle to consider the implementation of provincial tax credits along the lines favoured by the Ontario Government.

In particular, the federal finance minister said in response to the Ontario Government's white paper on provincial-municipal tax reform:

> A third purpose of the Ontario proposal is described as making it possible to permit deductions from the provincial income tax by way of credits for property taxes, retail sales taxes and health insurance premiums. Such credits, it is said, might vary with incomes and family circumstances, and might even involve net payments to those whose credits exceed their provincial income tax liability. The introduction of such tax credits would greatly complicate the tax return and collection administration. Nevertheless the government would be prepared to discuss the possibility of carrying out such operations under revised collection agreements.[18]

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[15] Hon. Charles MacNaughton, *Ontario Proposals for Tax Reform in Canada* (Toronto: Department of Treasury and Economics, 1970), pp. 15 and 16.

[16] See *Effects of Ontario's Personal Income Tax Proposals*, and *Tax Reform and Revenue Growth to 1980, op. cit.*

[17] See especially Chapter 4 of *Effects of Ontario's Personal Income Tax Proposals, op. cit.*, pp. 43-45.

[18] Hon. E.J. Benson, *Proposals for Tax Reform* (Ottawa: Queen's Printer, 1969), p. 83.

A.6 Design of the Ontario Property Tax Credit

The design of a tax credit system which would be both simple and equitable began following the introduction of the new federal income tax legislation (Bill C-259) in June 1971. At the November 1971 meeting of the Ministers of Finance in Ottawa, Ontario outlined the general framework of the tax credit plan and requested that it be incorporated in the Canada-Ontario tax collection agreement.[19] In the course of five meetings between officials of the Ontario Department of Treasury and Economics and the Department of National Revenue held between November 1971 and February 1972 and through extensive correspondence, the administrative and operational details of the tax credit plan were worked out and necessary modifications adopted. In February the Government of Canada agreed to administer the Ontario property tax credit and indicated that it would be used as the standard for other provinces. Arrangements for the incorporation of the property tax credit with the income tax return and the Department of National Revenue's tax collection procedures were substantially completed by early April 1972. The general form of the tax credit plan should make its expansion to include retail sales tax, health insurance premiums and other targets of reform which the Ontario Government may assign in subsequent years a relatively simple operation.

A.7 Amount of the Property Tax Credit

The Ontario tax credit system yields credits which vary according to income, family size and the level of property taxes paid.

The formula for determining the 1972 property tax credit is as follows:

Homeowners • $90 plus 10 per cent of property tax paid minus 1 per cent of taxable income, up to a maximum credit of $250.

Renters • $90 plus 2 per cent of annual rent minus 1 per cent of taxable income, up to a maximum credit of $250.

Where the property tax paid is less than $90 or the annual rent is less than $450, the tax credit entitlement will be equal to the actual property tax paid or 20 per cent of rent paid, minus 1 per cent of taxable income. Thus, benefits under the program are appropriately reduced for taxpayers resident in the province for only a part of the year and for those who pay very low property tax or rent.[20]

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[19] See Hon. W. Darcy McKeough, "Preliminary Outline of a System of Property and Sales Tax Credits for Ontario Taxpayers", Meeting of Ministers of Finance, Ottawa, November 1-2, 1971 (Toronto: Department of Treasury and Economics) mimeo.

[20] *Ontario Budget 1972, op. cit.*, p. 80.

The process of selecting this formula was guided by a number of considerations and constraints.

1. The Principal Objective

The most important consideration and the principal objective of the property tax credit is to relieve the regressive burden of residential property taxes on low-income individuals and relate the final burden of taxes more closely to ability to pay.[21]

2. Horizontal Equity

For heads of households with similar incomes, relief is to reflect variations in actual property taxes paid. The analysis of the Guelph situation confirms that there is a wide variation in the amount of property taxes paid by heads of households with similar levels of gross income. This wide variation is also evident for families with similar levels of household income. The variance reflects conscious consumer choices and inelasticity in the housing market, rather than capricious assessment practices, because the assessment data used in this study was produced following the complete re-assessment of properties at market value in the municipality of Guelph.

In the accepted property tax formula, the wide variation of property taxes for those with similar incomes is taken into account by adding to the basic credit a fraction of property taxes (or rental equivalent) actually paid.

3. Vertical Equity

The Ontario formula is designed to give progressively less relief, as income increases, to individuals paying similar levels of property tax. An important policy guideline in selecting the formula was that a taxfiler filing as married with two children, and having an income of between $10,000 and $12,000 should receive about the same benefit that he would have received from existing basic shelter rebates for most municipalities.

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[21] The United States Advisory Commission on Intergovernmental Relations recommended in 1967 that the various states take action to help the localities finance the cost of relieving an undue local property tax burden on low-income families. It noted that "although the value of the family residence serves as a fairly good proxy of ability to pay taxes in rural society, and still does in suburbia, total household income stands out as a far more precise measure of taxable capacity in our modern urban society." A Commission Report, *Fiscal Balance in the American Federal System* (Washington: Advisory Commission on Intergovernmental Relations, 1967) Vol. 1, p. 22.

4. *Sensitivity to Family Size*

The property tax formula is sensitive to varying family size and age composition. In situations where gross income and property tax levels are identical, taxable income is diminished as the size and number of personal exemptions and deductions increase. Reducing the basic credit by 1 per cent of taxable income rather than gross income ensures that the final credit is sensitive to family circumstances.

5. *Revenue Considerations*

The revenue cost of the property tax credit formula is not to be significantly in excess of the estimated cost of continuing the basic shelter exemption grant in 1972.

6. *Simplicity of Administration*

An acceptable property tax credit formula has to be one which is both relatively easy for the individual tax filer to calculate and one which involves a minimum amount of additional systems work and verification effort by the federal Department of National Revenue. One of the major difficulties experienced with property tax credit formulae in effect in the United States is the complexity of calculations required for the individual to assess the size of his credit. The Wisconsin scheme (the first property tax credit operational in North America) is a notable example of a highly complex set of eligibility rules and calculations. Thorough quantitative testing of the implications of alternative formulae in developing the Ontario credit provided the Provincial Treasurer and his officials with sufficient confidence in the revenue and incidence effects of the chosen formula to keep the number of safeguards and constraints to a minimum.

A.8 Supplementary Relief Programs

In addition to the property tax credit plan two additional relief programs are being continued in 1972: the 25 per cent farm tax rebates and the \$50 to \$100 supplementary tax relief grants to needy pensioners.

Guaranteed Income Supplement recipients have no taxable income and will receive at least \$100 from the property tax credit. In addition G.I.S. recipients will continue to benefit from Ontario's \$50 to \$100 supplementary tax relief grants.

Because many farmers have little or no taxable income, they will experience greater benefits than under the former basic shelter grant program.

In future years Ontario would prefer to incorporate special relief to farmers and pensioners in the general tax credit system. This arrangement would permit fairer treatment of all pensioners by eliminating the sharp cut-off between those who qualify for the Guaranteed Income Supplement and those who do not.

APPENDIX B

PROGRAMS AND STUDIES IN OTHER JURISDICTIONS

TABLES

PROGRAMS AND STUDIES IN OTHER JURISDICTIONS

B.1 Property Tax Relief Programs

With the introduction of the property tax credit, Ontario is the first jurisdiction in either North America or the United Kingdom to base its property tax relief on the criteria of ability to pay, unrestricted by other conditions such as age or ownership and operated through the income tax structure. In North America there are numerous tax credit schemes for the relief of excess property taxes. Most of these schemes in other jurisdictions were introduced in the last years of the 1960's. Without exception these are confined to the elderly. The three principal methods of relieving regressive property taxes are by means of exemptions, homeowner grants, and tax credits.

Exemptions

In Ontario, following World War I, a program of partial graded exemptions was introduced. Through this program homes assessed at not more than $4,000 became eligible for a percentage reduction of property taxes (other than for school purposes) in municipalities that elected to adopt the plan by-law.[1] The City of Toronto adopted the plan in 1921 and the Town of New Toronto did so in 1923. By 1955, when the right to introduce such a scheme was withdrawn, no other municipality in Ontario had done so.

In its Report, the Smith Committee outlined its objections to exemption schemes. In the two municipalities adopting the plan, it was confined under the by-laws to single family dwellings. Because the plan did not assist people in apartments or similar multiple accommodation and because most rooming and boarding houses were too big to qualify, the Report noted that persons living in all these kinds of accommodations were subsidizing persons in single family dwellings where circumstances were often better than their own.[2] The Report also noted that the four-step approach to exemptions resulted in serious "notch" problems: immediately below a step or "notch", taxable assessment was on 50 per cent of actual assessment, but with an extra dollar added to assessment, taxable assessment becomes 60 per cent of the total. Finally, because of the basically arbitrary quality of decisions as to what properties would qualify for the partial exemption, the Report rejected "as unsuitable the partial graded exemption as a means of tempering the weight of property taxation."[3]

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[1] Smith Committee, *op. cit.*, Vol. II, paragraph 95, p. 88.

[2] *Ibid.*, paragraph 97, p. 89.

[3] *Ibid.*, paragraph 99, p. 90.

Partial exemption schemes of various descriptions have existed in the United States for some time and are restricted to such target groups as veterans or the elderly. The most widespread form of these is the partial exemption of real and personal property of veterans. Less widespread are homestead exemptions or grants against property taxes. In 1961 in the United States, homestead exemptions and veterans' exemptions represented over 80 per cent of overall partially exempt assessed value.[4]

Indiana, Massachusetts and Oregon all have partial exemption schemes for the assistance of the elderly. Under the Oregon scheme those not qualifying for the complete exemption may arrange for a tax deferment. The deferred taxes are a lien against the property until the death of the owner, the sale of the house or a status change of the property.[5] In 1967 Ontario introduced a tax deferment program. Under this scheme a refund is available equal to one-half of the taxes imposed on property owned and occupied by persons 65 years of age or over up to a maximum of $150. The refunded amount is reimbursed to the municipality from the Province and becomes a lien on the property. This deferment program in Ontario is subject to local choice.[6]

Homeowner Grants

The provision of homeowner grants is another approach to property tax relief which has been in effect for some time. In Canada, until 1972, homeowner grants were flat amounts in all four western provinces. However, in its 1972 provincial budget, Manitoba, following the Ontario lead, introduced an education property tax credit.[7] The homeowner grant continues in the other three western provinces and by 1970 had reached $150 in British Columbia.[8]

The Oregon property tax relief scheme is the only American program which at all resembles the homeowner grant programs in existence in Canada. The Oregon scheme, while confining relief to reductions of the property tax bill, as does the one in British Columbia, relates the size of relief to the amount by which property taxes exceed an increasing percentage of household income.

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[4] Yung-Ping Chen, "Present Status and Fiscal Significance of Property Tax Exemptions for the Aged", *National Tax Journal*, Vol. XVIII, No. 2, June 1965, p. 169.

[5] *Ibid.*

[6] Smith Committee, *op. cit.*, Vol. II, paragraph 72, p. 83.

[7] Hon. Saul Cherniak, *Manitoba Budget 1972* (Winnipeg: Department of Finance, 1972) Appendix 3.

[8] See Stuart McFadyen, "British Columbia's Home Owner Grant Program: Has It Reduced Property Taxes?", *Canadian Tax Journal*, Vol. XVIII, No. 5, September-October 1970, p. 420.

The Smith Committee also had serious reservations about the homeowner grant approach to property tax relief.

> One may question whether a system of cash payments from a provincial government to a large proportion of its electorate represents a sound choice. They could be construed as an attempt to enlist support at the polls for the party in power. Again, in a period when the value of money is decreasing and the cost of government is growing, fixed payments become steadily less adequate over time. Thus, each adjustment in the amount of payments would be subject to the same political influences.[9]

Property Tax Credit Schemes

Wisconsin was the first jurisdiction in North America to introduce a property tax credit program. The scheme was adopted in 1963 and first put into effect in 1964.[10] It is intended to relieve the extraordinary burden of property taxes and is restricted to homeowners and renters aged 65 and over. The current income ceiling is $5,000. Here income is defined as it is for welfare programs, rather than as for income tax collection. It is the aggregate income of the husband and wife rather than of the principal income earner in the household, as in the new Ontario program. Income comprises all money receipts including government transfers. The credit formula itself is quite complex and in the first year of operation only 35,000 out of a possible 100,000 aged households benefited from the scheme. The regulations were broadened in 1966 and by 1968 the number of claimants had reached 70,000. The revenue cost of the program rose from $2 million to over $5 million over the same period.

In the late 1960's Minnesota and Colorado adopted schemes with the same broad characteristics as the Wisconsin program; that is, availability to elderly homeowners and tenants, an income ceiling and relief graduated by the size of income and the individual tax bill. Maine, Kansas, California, Pennsylvania and Iowa have recently introduced schemes to relieve the property tax burden of the elderly. These vary with income but are confined to homeowners only. The older program of New Jersey and the Oregon program, each of which involve reductions of the initial tax bill, are restricted to homeowners.[11]

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[9] Smith Committee, *op. cit.*, Vol. II, paragraph 83, p. 86.

[10] Billy Dee Cook, Kenneth E. Quindry, Harold M. Groves, "Old Aged Homestead Relief — The Wisconsin Experience", *National Tax Journal*, Vol. XIX, No. 3, September 1966, p. 319, and Kenneth E. Quindry and Billy D. Cook, "Humanization of the Property Tax for Low Income Households", *National Tax Journal*, Vol. XXII, No. 3, September 1969, p. 357.

[11] See Table B—2 which is from John Shannon, "Federal Assistance in Modernizing State Sales and Local Property Taxes", *National Tax Journal*, Vol. XXIV, No. 3, September 1971, p. 379.

In Great Britain residential properties were revalued for property tax (rates) purposes in 1963 and under The Rating (Interim Relief) Act, 1964, a rating authority can grant relief to a householder whose rates "greatly" increased through revaluation.[12] Relief is thus only for an extraordinary change in the burden of property taxes and not the burden itself. In addition the authorities must be satisfied that the increase will cause hardship. Relief is limited to the amount by which the increase exceeds either 25 per cent or £5.

Provincially financed schemes of property tax relief for Ontario, Manitoba and British Columbia are summarized in Table B—1. Saskatchewan has a homeowner grant program which in 1972 will provide a maximum of $78 to resident homeowners. The grant to homeowners not in residence in their own homes is somewhat less. The Alberta homeowner grant in 1972 is the smaller of $75 or residential property tax less one dollar. This applies to owners who have occupied their homes for at least 120 days in the particular year. Persons 65 years of age and over who receive the Guaranteed Income Supplement may receive a grant to a maximum of $150 or the equivalent of the equalized value of the education property tax. Starting in 1972 old age pensioners who are renters are eligible for a grant of a flat amount of $50.00 towards property taxes.

Property tax relief schemes financed and administered by the state governments in the United States are outlined in Table B—2.

Great Britain introduced measures to relieve property taxes or rates in 1966-1967. Relief is available to married couples whose weekly income does not exceed £14.75. The ceiling is increased by £2.50 for each additional dependent child. Relief is two-thirds of the rate bill above a minimum payment of £7.50 a year. This scheme is outlined in Table B—3.

B.2 Studies in the Incidence of Residential Property Taxes

There are three principal methods in previous studies used to assess the burden of residential property taxes by income group: survey data, census data and samples of income tax returns.

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[12] Committee of Inquiry into the Impact of Rates on Households, *Report* (London: H.M.S.O., 1965) paragraph 240, p. 98.

Survey data

The survey data used for most studies does not contain an explicit assessment of residential property taxes. Instead, property taxes are assumed to bear some consistent relationship to housing expenditures of owners and renters. For example, in Richard Musgrave's 1948 study, data on housing expenditures from the Survey of Consumer Finances was used. This method was also used in the 1956 Michigan study, the two studies done for Canada, for 1958 and 1961, and the study for Ontario in 1961. A small sample survey was undertaken in Los Angeles County to determine the relationship between household money income from all sources and the burden of residential property taxes. The most recent British study of the incidence of property taxes used information from the Family Expenditure Survey and the specially conducted Regular Expenditure Survey.

Census data

In a study on the incidence of residential property taxes for the United States in 1959-1960, Census of Housing data was used. A related study for Northern New Jersey in 1960, designed to assess the burden of property taxes on permanent income, uses Census of Population and Housing data. These two studies are described in Dick Netzer, *Economics of Property Taxes.*[13]

Tax return data

Residential property taxes were distributed on the basis of state tax return data in the Minnesota study for 1954, and the Wisconsin study for 1956. A 1960 study for the United States used federal tax return data. A small sample of state tax returns was used in the study for Wichita, Kansas in 1958.

The studies of the incidence of property taxes are summarized in Table B—4. The table lists the jurisdiction to which the study applies, the year it was done, the source of the data, the size of the sample where applicable, and whether or not the variance is given. The table also specifies the unit for which income is measured; that is, head of household income, family income, money income or total income. Whether the burden of residential property taxes is for owners, tenants or both is noted as is the principal source of the study.

[13] Dick Netzer, *Economics of the Property Tax* (Washington: Brookings Institution, 1966) p. 50 and p. 265 and following.

Table B–1

Provincially-Financed Residential Property Tax Relief from Property Tax Overloads

Province	Beneficiaries Description	Income Ceiling	Tax Relief Formula	Form of Abatement and Estimated Cost	Date of Adoption
Ontario	1. Homeowners and Tenants	None	$2,000 of assessment multiplied by the provincial equalization factor for the municipality and the local mill rate.	Provincial rebate administered by municipalities and landlords.	1968-1969
	2. Homeowners and Tenants	None	$30 plus 10 per cent of the average residential taxes in the municipality in the previous year.	Total / Average 1968 - $109m. / $50 1969 - $121m. / $54 1970 - $140m. / $58	1970-1971
	3. Homeowners and Tenants	Varies with property taxes and family circumstances.	$90 plus 10% of individual property taxes or 2% of rent less 1% of taxable income.	Average $71 in 1972. Maximum $250. Total revenue cost $160 million. Administered through federal tax collection.	1972
Manitoba	Homeowners and Tenants	Varies with property taxes and family circumstances. Unrestricted $50 minimum.	Education taxes actually paid to a maximum of $140 less 1% of taxable income. Minimum of $50.	Administered through federal tax collection.	1972
British Columbia	Resident Home Owners including Owner Occupied Apartments	None	Maximum grant is the lesser of annual grant level or total property taxes less $1.	Applied against individuals' local tax bill. 1957-1959 - $ 28 1970 - $150 per property	1957

Table B–2

State Financed and Administered Residential Property Tax Relief from Property Tax Overloads

State	Beneficiaries Description	Income Ceiling	Tax Relief Formula	Form of Abatement and Estimated Per Capita Cost	Date of Adoption
Wisconsin	Homeowners and renters age 65 and over.	$5,000	See footnote 1.	State income tax credit or rebate Cost - $1.50 (1968).	1963
Minnesota	Homeowners and renters age 65 and over.	$5,000	Relief ranges from 100% to 8% depending on amount of property tax payment and household income.	State income tax credit or rebate Cost - $0.50 (1968) (This aid is in addition to a general State-financed property tax relief that approximates 35% of the homeowner's tax bill).	1967
California	Homeowners age 65 and over; no relief for renters.	$10,000	Relief ranges from 95% of tax payment if household income is less than $1,000 to 1% of tax payment if household income is $10,000.	State rebate only Cost - $0.40 (1969).	1967
Vermont	Homeowners and renters age 65 and over.	Not explicit	Relief limited to that part of tax payment in excess of 7% of household income times a local rate factor that varies by tax rate of local community.[2]	State income tax credit or rebate Cost - $1.25 (1969).	1969
Kansas	Homeowners age 65 and over; no relief for renters.	$3,700	Same as Wisconsin tax relief formula.	State income tax credit or rebate Cost - NA.	1970
Colorado	Homeowners and renters age 65 and over.	$2,400 single $3,700 married (In addition, net worth during year must be less than $20,000)	Relief limited to 50% of the tax payment and cannot exceed $200. The credit or refund is reduced by 10% of income over $500 for individuals and 10% of income over $1,800 for husband and wife.[3]	State income tax credit or rebate Cost - NA.	1971
Maine	Homeowners and renters age 65 and over for males and 62 and over for females (At least 35% of household income must be attributable to claimant).	$4,000 (In addition, net assets must not exceed $30,000)	Relief equal to 7% of the difference between household income and $4,000. Limited to the total property tax levied, or 20% of rent paid.	State rebate only Cost - NA.	1971

New Jersey	Homeowners age 65 and over.	$5,000 (exclusive of social security benefits).	Deduction from tax bill of $160 or amount of tax liability whichever is less.	Reduction of tax bill. One half of cost of deduction reimbursed to municipality by the State. Cost - NA.	1953 (local) 1971 (State-local)
Pennsylvania	Homeowners: age 65 and over; Widows age 50 and over; permanently disabled persons.	$7,500	Relief ranges from 100% of tax (max. $200) when household income is less than $1,000 to 10% where such income is between $6,000 and $7,500.	State rebate only Cost - NA.	1971
Iowa	Homeowners: 65 and over or totally disabled.	$4,000	Deduction from tax bill of $125 or amount of tax liability whichever is less.	Reduction of tax bill. Cost of deduction paid by State to each taxing district.	1967
Oregon	Homeowners	None	Relief based on amount by which property taxes exceed percentage of household income. Varies from 3% on income up to $1,500 (max. relief $400) to 7% for incomes in excess of $8,000 (max. relief $100).[4]	Taxpayers initial tax bill is reduced by the amount of relief granted by the Department of Revenue and the Department pays to the counties the amount of relief granted.	1971

[1] Household income - $1,000 or less - relief ranges from 75% of amount by which property tax exceeds 3% of household income between $500 and $1,000; household income - over $1,000 - 60% of amount by which property tax exceeds 3% of household income between $500 and $1,000, 6% of income between $1,000 and $1,500, 9% of income between $1,500 and $2,000, 12% of income between $2,000 and $2,500, and 15% of all household income over $2,500. The maximum property tax to be used for this credit is limited to $330.

[2] The Commissioner shall annually prepare and make available the local rate factors by arraying all municipalities according to their effective tax rate and dividing the population of the State into quintiles from such array with those having the lowest effective tax rates being in the first quintile. The local rate factors shall be as follows: first quintile, 0.6; second quintile, 0.8; third quintile, 1.0; fourth quintile, 1.2; fifth quintile, 1.4. The amount of property taxes or rent constituting property taxes used in computing the credit are limited to $300 per taxable year. "Rent constituting property taxes" means 30% of the gross rent actually paid during the taxable year.

[3] For renters, the tax-equivalent amount is considered to be 10% of the actual rent paid during the tax year.

[4] Persons born before March 1, 1891, with an income not over $3,000 are entitled to relief of the total amount of property taxes on their homestead up to a maximum of $400.

NA — Data not available.

Source: ACIR staff compilation from Commerce Clearing House Data.

Note: This table is from John Shannon: "Federal Assistance in Modernizing State Sales and Local Property Taxes", *National Tax Journal* Vol. XXIV, No. 3, September 1971, page 379, as revised.

Table B–3

Property Tax Relief In Great Britain

Jurisdiction	Beneficiaries Description	Income Ceiling	Form of Abatement	Tax Relief Formula	Date of Adoption
England Scotland and Wales	Property tax (rate) rebate scheme for occupiers of property with low incomes.	£14.75 per week for married couple; £12 for single; increased by £2.50 for each additional dependent child.	Relief is 2/3 rds of rate bill above a minimum payment of £7.50 a year	Rebate of local tax. Cost £17 m (1966/67). No. of recipients 900,000.	1966/67

Source: Department of the Environment, Government of the United Kingdom.

Table B–4

Studies in the Incidence of Residential Property Taxes

Jurisdiction	Year	Type of Evidence	Sample Size	Variance	Unit of Measure	Form of Holding	Source
U.S.A.	1948	Real estate tax on: A. Owners: borne by owners, distributed by housing expenditure of homeowners. B. Tenants: Tax on improvements borne by tenants, allocated by housing expenditure of renters; tax on land borne by owners, distributed on basis of rental income.	No sample	N.A.	Spending units. Expenditures from 1949, Survey of Consumer Finances.	Owners and tenants.	R.A. Musgrave, J.J. Carroll, L.D. Cook and L. Frane, "Distribution of Tax Payments by Income Groups: A Case Study for 1948" *National Tax Journal*, March, 1951.
Minnesota	1954	Sample of state tax returns. Assumes real estate taxes on residences shifted to renters. Renters in a particular income class occupy housing of comparable value to owners in same income class.	Not given	Not given explicitly. Wide variation noted.	Income receiving unit.	Owners and tenants.	O.H. Brownlee, *Estimated Distribution of Minnesota Taxes and Public Expenditure Benefits* (Minneapolis: University of Minnesota Press, 1960).
Michigan	1956	Homeowners: Derived from Survey Research Center, University of Michigan, Study 650, Table HV-2. Renters: LIFE Study of Consumer Expenditures, various pages, for U.S.A. as a whole, 1957. Study assumes 1/3 of tax borne by owner and 2/3 passed on to tenants.	Not given	Not given	Family money income.	Owners and tenants.	Richard A. Musgrave and Darwin W. Daicoff, "Who Pays Michigan Taxes" *Michigan Tax Study, Staff Papers* (Lansing, 1958), pp. 145 and 174.
Wisconsin	1956	Sample of state tax returns and average annual expenditure estimates for average family size from Bureau of Labour Statistics and Department of Agriculture. Residential property taxes: on owners, borne by owners, on tenants, borne by renters.	Not given	Not given	Family income: where this means income of husband and wife aggregated.	Owners and tenants.	Harold Groves and Donald Knight, *Wisconsin's State and Local Tax Burden* (University of Wisconsin, Department of Commerce, 1959).

Wichita, Kansas	1958	Assessment rolls, State Income Tax Returns, Welfare rolls and Social Security Records.	356	Not given	Family income: (70% of tax returns, joint returns of husband and wife).	Owner occupants only.	Jack E. Robertson, "Comparative Tax Burdens for a Midwestern City" *National Tax Journal*, September, 1962.
Lansing, Michigan	1955	Source of sample not given.	827	Noted as wide	Family income after federal income taxes.	Owner occupants only.	Robert H. Pealy and others, "The General Property Tax", *Michigan Tax Study Staff Papers* (Lansing: 1958) p.187.
U.S.A.	1959	Sample survey by Survey Research Centre, University of Michigan.	2,400	Not given	Family money income.	Owners and tenants.	James N. Morgan, Martin H. David, Wilbur J. Cohen and Ha vey E. Brazer, *Income and Welfare in the United States* (McGraw-Hill, 1962).
U.S.A.	1960	Federal income tax returns. Data from U.S. Treasury, *Statistics of Income, Individual Income Tax Returns 1960.* Taxable returns only. Average real estate taxes claimed on returns with itemized deductions.	Aggregative statistics	Not given	Average gross income on individual tax returns, taxable returns only.	Owners.	Dick Netzer, *Economics of the Property Tax*, (Washington: Brookings Institution, 1966) Table 3–6, p. 49.
U.S.A.	1959-1960	Residential Finance Survey Data, *Census of Housing* 1960 land component of rental residential property taxes distributed by rental incomes. Improvements component of rental taxes distributed as fixed per cent of gross rents.	Survey statistics	In tabular form for owners. Not given for renters.	Average gross income on individual U.S. tax returns, all returns. By income of renter or owner.	Owners and tenants.	Dick Netzer, *Ibid.*, Tables 3–6, 3–7, 3–9.
Northern New Jersey	1960	Census of Population and Housing. Data for 8 counties and 10 heads of household occupation groups.	Census data	N.A.	Family money income.	Owners and tenants.	Emmanuel Tobier, "Residential Property Tax Incidence in Northern New Jersey" in Dick Netzer, *Ibid*, p.265 and following.
Los Angeles County, California	1959	Sample Survey	184	Not given	Household money income from all sources.	Owners only.	Gerhard N. Rostvold, "Property Tax Payments in Relation to Household Income: A Case Study of Los Angeles County" *National Tax Journal*, June 1963.

Ontario	1961	Total residential taxes distributed by: A. Owners: Market value of owner occupied homes. B. Renters: Land - net rental income. Improvements - rent payments. Data presented as burden of total property taxes: residential and commercial. Incidence of residential property tax on renters: about 1/5 to owners, 4/5 to tenants.	No sample	N.A.	Family money including government transfers, retirement pensions, annuities and alimony. D.B.S., *Distribution of Non Farm Incomes In Canada By Size, 1961.*	Owners and tenants.	James A. Johnson, "The Incidence of Government Revenues and Expenditures" A study prepared for the Ontario Committee on Taxation (Toronto: Queen's Printer, 1967).
Canada	1957	A. Owners: borne by owners, distributed by total value of owner occupied houses in each income class. B. Tenants: Tax on improvements borne by tenants, and distributed on the basis of rents paid; tax on land distributed amongst owners of land. One-third is borne by land.	No sample	N.A.	Spending units, D.B.S., *Distribution of Non-Farm Incomes in Canada by Size - 1957.*	Owners and tenants.	Irving J. Goffman, *The Burden of Canadian Taxation*, (Toronto: Canadian Tax Foundation, 1962) pp.58-59.
Canada	1961	A. Owners: borne by owners, distributed by estimated value of owner-occupied homes. B. Tenants: borne entirely by tenant. (Alternative allocations are tested.)	No sample	N.A.	Spending units, D.B.S., *Urban Family Expenditure, 1959.*	Owners and tenants.	W. Irwin Gillespie, "The Incidence of Taxes and Public Expenditures in the Canadian Economy", *Studies of the Royal Commission on Taxation 2* (Ottawa: Queen's Printer, 1964).
England, Scotland and Wales	1963	Family Expenditure Survey; Regular Expenditure Survey, 1963.	F.E.S.: 6,869 R.E.S.: 5,003	Many different subsets of sample examined.	Household income.	Owners and tenants.	*Committee of Inquiry into the Impact of Rates on Households, Report,* (London: H.M.S., 1965) Table 200, page 77. Known as the Allen Report.

Notes: 1. Two older British studies have not been considered: J.R. and U.K. Hicks, *The Incidence of Local Rates in Great Britain, Occasional Papers, National Institute of Economic and Social Research* (Cambridge: Cambridge University Press, 1964) and H.F. Lydall and R.F.F. Dawson, "Household Income Rent and Rates", *Bulletin of the Oxford University Institute of Statistics,* 1954.

2. In this table N.A. means not applicable.

Analysis of income and
property taxes in
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